

SYSTEM AND METHOD FOR DISTRIBUTING INFORMATION

Field of the Invention:

The present invention relates generally to a system and method for distributing information among participants in an event, and more particularly to a web-based system for wirelessly communicating, in substantially real-time, information to participants in an event relating to the activities of the participants during the event.

Background of the Invention:

Many different types of events include a plurality of participants who perform activities simultaneously, but in different locations. As the participants perform these activities, each participant, or group of participants, generally generates information relating to or describing the participant's recently performed activities. During marketing research, for example, a plurality of researchers may simultaneously cover different geographic territories, collecting marketing information as they cover their area. In a voting situation, poll operators at separate locations simultaneously accumulate voting information during a voting event.

In other circumstances the event is competitive, such as an athletic event, wherein the information generated by the participants of the event relates to or describes the performance of the participants as the participants progress toward the end of the event. In a fishing contest, for example, the performance of a participant may be measured or described by the number and/or size of the fish caught by the participant. In a golf tournament, the performance of the participant may be described by the score of the participant for each hole in a round of golf.

Sharing of the above-described information among the participants during the event is desirable for a variety of reasons. In non-competitive, information gathering events, trends in the information may be identified early in the event, thereby possibly influencing the remainder of the event. In competitive events, the performance of one participant relative to the other participants may be used by the participant to adjust subsequent performance. For example, during a golf tournament, a participant may play more aggressive golf during the remainder of a tournament if the participant is aware that the other participants are presently outplaying the participant.

Some systems for tracking information during an event merely permit the collection of the individual information of participants during the event. At the end of

the event, the information is compiled and distributed among the participants. Clearly, such systems do not permit mid-event adjustments in either the way the event is conducted or the performance of the participants. Other systems permit the sharing of information during the event by utilizing wireless technology that permits the 5 participants to upload individual information to a central location and download information relating to other participants from the central location. These systems are deficient, however, because they require continuous communication with the central location. When, for example, an individual wireless device is out of range for communication with the central location, the participant is prevented not only from 10 uploading and downloading information, but also from continuing to compile the participant's individual information.

Summary of the Invention:

The present invention provides a system and method for distributing 15 information during an event among a plurality of participants in the event. The system generally includes a plurality of wireless devices for wirelessly communicating with a server on a network via a transceiver coupled to the network. Each wireless device includes application software for enabling the associated 20 participant to periodically store individual information in the wireless device during the event and wirelessly transmit the information to the transceiver. The transceiver is adapted to receive individual information from and provide event information (i.e., a compilation of the received individual information) to the wireless devices. The server includes server software to enable the server to receive individual information 25 from the transceiver, compute or compile the event information based on the received individual information, and transmit the event information to the transceiver for wireless distribution to the participants via the wireless devices.

In one embodiment of the invention, the application software continues to enable storage of the individual information when the wireless device operating the application software is outside a range of communication of the transceiver. In 30 another embodiment of the invention, the application software permits downloading of advertising material from the network and storage of a portion of the advertising material on the wireless devices such that that portion of advertising material may be

viewed by a participant even when the participant's wireless device is outside the range of the transceiver.

The features of the present invention described above, as well as additional features, will be readily apparent to those skilled in the art upon reference to the 5 following description and the accompanying drawings.

Brief Description of the Drawings:

Fig. 1 is a conceptual diagram of an information distribution system according to one embodiment of the present invention.

10 Figs. 2-11 are screen shots of various screens generated on a wireless device by software according to embodiments of the present invention.

Description of Embodiments of the Invention:

The embodiments described below are merely exemplary and are not intended 15 to limit the invention to the precise forms disclosed. Instead, the embodiments were selected for description to enable one of ordinary skill in the art to practice the invention.

A system and method according to the present invention may find application in a variety of different environments. Marketing, voting, fishing, and golfing 20 environments are mentioned above. For purposes of example only, and to simplify the description of embodiments of the invention, the following description relates to a golfing environment. More specifically, the various features of the present invention are described below as adapted to provide substantially real-time, wireless distribution of golf score data over a network among participants in a golfing event.

25 Referring now to Fig. 1, a system 10 according to one embodiment of the present invention generally includes a plurality of wireless devices 12a-12x (only three shown), a transceiver 13, a network 14, a server 16, a database 18, a handicapping system 20, a director browser interface 22, an administrator device 24, and a web user browser interface 26. A variety of different personal digital assistants 30 (PDAs) or other similar devices may be employed as wireless devices 12a-12x, such as, for example, Palm® VIIx, Palm® i705, or other Palm® devices including CDPD modems. Wireless devices 12a-12x communicate with transceiver 13 using conventional wireless communication technology. Transceiver 13 is coupled via

network 14 to server 16. Network 14 may be, for example, the internet in conjunction with radio and cellular networks. Server 16 may be implemented using, for example, an Intel x86-based workstation or similar device. As shown in Fig. 1, server 16 is connected to database 18 which contains various types of information for distribution and storage as further described below. Director browser interface 22 may be implemented using a standard personal computer (PC) or other similar web interface connected to network 14 via a conventional modem (not shown). Administrator device 24, like wireless devices 12a-12x, may be implemented as any one of a variety of conventional PDAs. Administrator device 24 may communicate with server 16 via network 14 using either wireless communication technology or via a conventional "cradle" (not shown) coupled to network 14 via a PC and modem (not shown). Web user browser interface 26 may be either a standard PC or a conventional PDA. Handicapping system 20 may be, for example, the USGA handicapping system, a web site on the internet that provides handicap calculation based on inputted golf scores as is further described below.

A program for use with a system as shown in Fig. 1 may include a variety of separate software components. In addition to the various operating systems and communications software included in the hardware components shown in Fig. 1, wireless devices 12a-12x include application software 28, server 16 includes server software 30, director browser interface 22 includes director software 32, and administrator device 24 includes administrator software 34. Each of the various software components enables the corresponding hardware component to perform certain functions. In order to provide context for a description of those functions, an example of a golf tournament event is described below.

A tournament organizer or director may set up a tournament by accessing a web site (not shown) operated by server 16 on network 14. The web site is commerce enabled in a manner known to those skilled in the art to permit payment of a fee in exchange for the service provided by the system shown in Fig. 1. At this time, the tournament director may provide a course description including an identifier recognized by handicapping system 20, and other information including course slope, hole par values, course rating, hole yardage, etc. Alternatively, the tournament director may select from predefined courses stored in database 18. The tournament director may then select tournament parameters provided by server software 30

including the type of golf game that will be played, the number of teams (if team play is specified), the number of players on each team, and the availability of tournament scoring information to non-participants. In addition, the tournament director can specify contest holes such as a longest drive hole, a closest-to-the-pin hole, a longest putt hole, and a hole-in-one hole. As is customary in golf tournaments, prizes may be associated with the winners of the contests associated with the various contest holes.

5 The contest hole information, along with the other information defined by the tournament director is stored on server 16. The tournament director can also select from available local and national advertisements to be displayed on wireless devices

10 12a-12x during the tournament. This advertising material may be organized such that certain advertisers sponsor certain holes, while other advertising materials are periodically or episodically displayed or associated with the entire tournament as further described below.

Referring again to Fig. 1, administrator device 24, operating administrator software 34 which is also loaded prior to the tournament, may be used to effect changes in the tournament configuration just before the tournament begins or during the tournament. Administrator device 24 may be carried, for example, by a tournament official onto the course to ensure that the tournament is properly configured for the participants. For example, administrator software 34 permits a user

20 of administrator device 24 to change the selection of contest holes, add or remove teams from the previously configured team definition, add or remove players from a particular team, and change team or participant scores to correct mistakes. These changes or additions may be wirelessly communicated to server 16 via transceiver 13 and network 14 so that server software 30 can make corresponding changes to the

25 information stored in database 18. Alternatively, administrator device 24 may be placed in a PDA “cradle” connected to a standard PC configured for access to network 14 (and server 16).

Prior to the tournament, the participants are instructed to bring wireless devices 12a-12x for use during the tournament. Alternatively, wireless devices 12a-30 12x may be provided to the participants by the tournament organizer or sponsors for use during the tournament. Application software 28 is loaded on the respective wireless devices 12a-12x. Since each participant was previously defined by the tournament director using director browser interface 22, server software 30 may

interface via network 14 with handicapping system 20 to determine the present handicap of the participants in the tournament. If a participant does not have a corresponding handicap stored in handicapping system 20, server software 30 indicates to director browser interface 22 during setup of the tournament that a present 5 handicap for a particular participant must be provided. The tournament director provides that information prior to the beginning of the tournament.

In another embodiment of the invention, participants operating application software 28 on wireless devices 12a-12x and users of web user browser interface 26 operating conventional web browser software can access a web site controlled by 10 server 16 to directly input golf score data after any round of golf on a course recognized by handicapping system 20. The golf score data is transferred from server 16 to handicapping system 20 where an updated handicap is calculated. The updated handicap may then be transferred to server 16 which may send an e-mail message to the participant or user who provided the golf score data. The e-mail message may 15 include the updated handicap of the participant or user. Server 16 may also maintain a listing of updated handicaps of participants and users to be viewed on the web site controlled by server 16.

During play, each participant, or a representative participant from each team, carries a wireless device 12a-12x. Application software 28 initially generates an 20 introduction screen 36 as shown in Fig. 2. From introduction screen 36, a participant may select tournament play by activating Tournament Play button 38, handicapping calculation as described above by activating Handicapping Button 40, or event calendar viewing (as described below) by activating Events Calendar Button 42. Assuming the participant activates Tournament Play button 38, application software 25 28 generates a main screen (scoring screen 44) as shown in Fig. 3 that includes an electronic leaderboard 45 that resembles a traditional golf scorecard. At the end of each hole, the participant taps one of the score buttons 0-9 at the lower portion of screen 44 to indicate the score of the participant or the team, depending upon the type 30 of play. This golf score data (or individual information) is stored in the memory (not shown) of wireless device 12a-12x when the participant taps the Enter Score button 47. The Clear Score button 49 may be tapped to correct a mistakenly entered score. When the golf score data is entered, application software 28 enables wireless device 12a-12x to upload the golf score data to server 16 via transceiver 13 and network 14.

If a particular wireless device 12a-12x is not within a range of reception of transceiver 13 (for example, a portion of the golf course is too far from transceiver 13 to establish wireless communication), application software 28 simply delays transmission of the golf score data until wireless communications are again established. The golf score data is time-stamped by application software 28 when inputted into wireless device 12a-12x. Since the data is time-stamped, server 16 can determine, after a wireless device 12a-12x has been out of communication for a period of time, which (if any) of the golf score data subsequently transmitted should be added to the data stored in database 18. In one embodiment of the invention, server 16 may discontinue communications with a particular wireless device 12a-12x if, after a predetermined period of time, or a predetermined number of holes, the participant operating wireless device 12a-12x fails to input and upload a score. In this way, the system of Fig. 1 encourages information sharing during the event.

As participants upload golf score data to server 16, server 16 computes event information based on the golf score data. In this example, the event information is the leaderboard 45 shown on screen 44 of Fig. 3 which lists the various participants or teams in order of their current score (best score at the top). Of course, the event information could be displayed in a variety of different formats equally suitable for expressing the relative performance of the participants. This event information is transmitted to transceiver 13 substantially immediately after it is calculated (e.g., immediately after each participant or team uploads golf score data to server 16). The event information is then distributed to wireless devices 12a-12x by transceiver 13.

In a similar manner, participants may input contest hole information (i.e., the distance of a participant's drive on the longest drive hole, etc.) for uploading to server 16. Specifically, application software 28 may be configured to generate a pop-up message (not shown) after a hole immediately preceding a contest hole. The message may include a reminder that the next hole is a contest hole of a particular type, as well as an episodic advertisement such as who is sponsoring the contest hole. If, for example, the contest hole is a longest drive hole, the message may include an Input Drive Distance button (not shown) to enable the participant to input the participant's drive distance by, for example, selecting a distance from a list of distances provided in a pop-up menu. When the distance is entered, application software 28 enables wireless device 12a-12x to upload the contest hole information via transceiver 13 and

network 14 to server 16. Server software 30 uses the contest hole information from individual participants (or teams) to update contest hole information stored in database 18. If a participant's contest hole information indicates that the participant is the new contest hole leader, server software 30 may enable server 16 to transmit a message via network 14 and transceiver 13 to all of the participants' wireless devices 12a-12x. The message may be displayed as a pop-up message, immediately notifying the participants when a new contest hole leader has been identified. Server software 30 may also provide a listing of contest hole leaders (or all contest hole information) on the web site controlled by server 16 for viewing by the participants or authorized users.

Also shown on Fig. 3 are advertiser links 46, 48, a financial information link 50 and news information link 52. If the wireless device 12a-12x is within communication range of transceiver 13, when a participant activates one of links 50, 52, the participant views, using conventional web browser technology, website information on network 14 associated with the selected link. In one embodiment of the invention, application software 28 generates another screen 54 (without communicating with network 14) in response to selection of one of the advertiser links 46, 48. Screen 54 (shown in Fig. 4) includes a portion of advertising material (associated with the advertiser of the selected link 46, 48) that is resident or stored in the memory of wireless device 12a-12x. By storing this advertising material in the memory of wireless device 12a-12x, the system of the present invention permits viewing of the resident advertising material even when wireless device 12a-12x is outside the range of communication of transceiver 13. Screen 54 of Fig. 4 may also include a web site link 56 which the participant may tap to obtain further information regarding the advertiser, assuming wireless communication with transceiver 13 is possible. The participant may return to scoring screen 44 (Fig. 3) by tapping the OK button 55 on screen 54.

It should be understood that application software 28 may be configured such that the advertising materials depicted in Figs. 3 and 4 may change periodically or episodically. For example, application software 28 may be configured to change advertiser links 46, 48 after each hole. Episodic advertising material may be displayed after a particular hole is completed, or after a predetermined number of holes are completed. Additionally, the presentation of the advertising material may be

configured such that certain advertisers are associated with contest holes or other predetermined events during play. Of course, the second layer of resident advertising material included on screen 54 (Fig. 4) may be configured to correspond to the changes in advertising material displayed on scoring screen 44 of Fig. 3.

5 Accordingly, as a participant progresses through a golf tournament, a variety of different types of advertising material are presented to the participant in a manner that corresponds to the sequence of holes of the round of golf or other events that occur during the round.

According to an alternate embodiment of the invention, application software
10 28 permits participants of an event to enter an e-mail address into wireless device 12a-
12x for submission to server 16 via transceiver 13 and network 14 to obtain additional
information related to a selected advertiser featured in the advertising material.
Additionally, an option may be provided by application software 28 for creating an
icon corresponding to a selected advertiser via the operating system of wireless device
15 12a-12x . For example, application software 28 may be configured such that when a
user taps an advertiser link 46, 48, a pop-up message is displayed providing the
participant with an option of creating an icon (i.e., embedding an advertisement) for
display on a main operating screen of wireless device 12a-12x, the icon being linked
to the selected advertiser's web site.

20 Web user browser interface 26 may also be used to access the web site controlled by server 16 on network 14 for viewing the event information or leaderboard 45 illustrated in Fig. 3. As indicated above, the tournament director may use director browser interface 22 to select whether the event information is public or private. If the information is public, the user of web user browser interface 26 can
25 view the event information, and associated advertising, in substantially real-time without having to provide a password and identification number to log in to the web site. If web user browser interface 26 is a PDA, the user may carry web user browser interface 26 onto the course being played during the event. Thus, the user of web user browser interface 26 may observe the tournament and obtain substantially continuously updated scoring information of all of the participants. If a tournament is
30 designated private, only users having the proper access information may log in to the web site and view the event information.

Additionally, a variety of types of historical information relating to prior tournaments or events may be accessed through the appropriate navigation of the web site by the user or a participant using a wireless device 12a-12x. The web site may also include a calendar of events stored in database 18. As indicated above, the 5 calendar of events may be viewed by a participant operating application software 28 by activating Events Calendar button 42 (Fig. 2). As shown in Fig. 5, the first level screen 58 of Events Calendar information includes a one month calendar 60 that may be scrolled forward or backward by tapping scrolling arrows 62, 64. A day containing an event may be darkened or otherwise marked (such as the 24th of January, 2002 10 shown on screen 58). By tapping an event day, application software 28 enables wireless device 12a-12x to communicate a request for further information regarding the event to server 16 and server software 30 over network 14.

Server software 30 enables server 16 to obtain additional information (if any) contained in database 18 regarding the selected event day. This additional 15 information is transmitted by server 16 via network 14 and transceiver 13 to wireless device 12a-12x, and is displayed by application software 28 as an information screen 66 as shown in Fig. 6. If more than one event occurs on a particular day as shown in Fig. 6, the user or participant may tap the desired event, thereby bringing up another, more detailed screen 69 including information regarding the selected event as shown 20 in Fig. 7. The web user or participant may exit screen 69 by tapping OK button 71, thereby returning to information screen 66 of Fig. 6. Screen 66 is similarly exited by tapping OK button 68, thereby returning to screen 58. Finally, the user or participant may exit screen 58 by tapping the OK button 70, thereby returning to main screen 36 shown in Fig. 2. As also shown in Fig. 6, a user or participant may add information 25 regarding an event by tapping an Add Event link 72 and uploading information regarding an event to server 16 in the manner described above.

An additional feature provided by the system of the present invention is a bulletin board feature wherein participants or other authorized users may send and receive messages by posting and reading messages on a bulletin board maintained by 30 server 16. For example, a participant may send a message to another participant by activating the message icon 72 shown in Fig. 3, causing application software 28 to generate a message screen 74 as shown in Fig. 8. By tapping the recipient arrow 76, the participant may select a recipient (e.g., an individual participant, a team, or all

participants of an event). Upon tapping the message arrow 78, the participant is presented with a list of predefined messages such as “nice shot” or “good putt.” The participant may select the desired message and tap the send button 80 to cause wireless device 12a-12x to transmit the message to transceiver 13, network 14, and server 16. The message may be date and time-stamped at this time. Server software 30 posts the selected message on a bulletin board screen 82 such as that shown in Fig. 9, and associates the message with the selected recipient. Server software 30 may also be configured to provide an indication (such as, for example, a pop-up message) to the intended recipient indicating that a message for the recipient has been posted on bulletin board screen 82. Server software 30 enables server 16 to transmit this message indicator via network 14 and transceiver 13 to the wireless device 12a-12x of the intended recipient. Alternatively, the content of the entire message may be transmitted to the recipient as a pop-up message, depending upon the message preferences set by the recipient upon configuring the operation of application software 28.

A participant may view bulletin board screen 82 by selecting a “switch to bulletin board” option from an action pull-down menu provided by the operating system of wireless device 12a-12x. When bulletin board screen 82 is displayed as shown in Fig. 9, the participant may tap on a message 86 or highlight a message 86 and tap the Detail button 87 to view the detail or content screen of the message as shown in Fig. 10. The participant may back up to scoring screen 44 of Fig. 3 by tapping the OK buttons 88, 90 of screens 89, 82, respectively. The participant may reply to a posted message 86 from bulletin board screen 82 using Reply button 91. By tapping Reply button 91, the participant causes application software 28 to generate a screen (not shown) listing pre-defined responses. The participant may select a response and tap the Send button 93 to send the message in the manner described above.

Alternatively, as indicated by Fig. 11, a participant may tap a team name 100 on scoring screen 44 to bring up a pop-up menu 102 that displays the names of the members of the team and a Send Message option 104. By selecting send message option 104, the participant evokes message screen 74 (Fig. 8) that is used in the manner described above.

Director software 32, administrator software 34, and server software 30 may be configured such that the users of director browser interface 22, administrator device 24, and web user browser interface 26 may send messages in the manner described above to other users or participants connected to the system. Additionally,

5 the system may be configured to permit custom messages as opposed to predefined messages. In this event, server software 30 may be configured to censor the messages to eliminate undesirable language by including a filter according to principles that are well-known in the art. Server software 30 may also include a message counter that permits transmission or posting of only a predetermined number of messages within a

10 predetermined time to avoid harassment of participants.

The foregoing description of the invention is illustrative only, and is not intended to limit the scope of the invention to the precise terms set forth. Although the invention has been described in detail with reference to certain illustrative embodiments, variations and modifications exist within the scope and spirit of the

15 invention as described and defined in the following claims.